

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces and supersedes all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A system for evaluating relationships between learning targets, wherein each learning target is a discrete learnable concept, said system comprising:
means for creating a learning map, which comprises an acyclic directed network that expresses learning target dependencies including precursor and postcursor relationships between learning targets, wherein a first learning target is a precursor of a second learning target if lack of knowledge of the first learning target implies a lack of knowledge of the second learning target and a first learning target is a postcursor of a second learning target if knowledge of the first learning target implies knowledge of the second learning target; and

means for assessing whether the learning target dependencies expressed by the learning map are accurate based on assessment data.

2. (Original) The system of claim 1, further comprising means for modifying the learning map, wherein the modifying means comprises means for modifying the learning map in response to the assessing means determining that one or more learning target dependencies expressed by the learning map are not accurate.

3. (Original) The system of claim 1, wherein the assessing means includes means for determining whether the learning map includes two or more learning targets that represent the same or essentially the same targeted concept.

4. (Original) The system of claim 3, further comprising means for modifying the learning map, wherein the modifying means is configured to modify the learning map in response to the assessing means determining that two or more learning targets included in the learning map represent the same or essentially the same targeted concept.

5. (Original) The system of claim 4, wherein, in response to the assessing means determining that two or more learning targets included in the learning map represent the same or essentially the same learning target, the modifying means is configured to combine the two or more learning targets into a single learning target.

6. (Original) The system of claim 1, wherein the assessing means includes means for determining whether the learning map includes a learning target that represents more than one targeted concept.

7. (Original) The system of claim 6, further comprising means for modifying the learning map, wherein the modifying means is configured to modify the learning map in response to the assessing means determining that a learning target represents more than one targeted concept.

8. (Original) The system of claim 7, wherein, in response to the assessing means determining that the learning map includes a learning target that represents more than one targeted concept, the modifying means is configured to split the learning target into at least two learning targets.

9. (Original) The system of claim 1, wherein the means for assessing whether the learning target dependencies expressed by the learning map are accurate includes means for assessing whether the learning target dependencies expressed by the learning map are accurate with respect to a first subset of students and means for assessing whether the learning target dependencies expressed by the learning map are accurate with respect to a second subset of students.

10. (Original) The system of claim 1, wherein the means for assessing includes means for determining whether the learning map includes a relationship between a first learning target

and a second learning target that is inconsistent with information collected from one or more assessments.

11. (Original) The system of claim 10, further comprising means for modifying the learning map in response to the assessing means determining that the learning map includes a relationship between a first learning target and a second learning target that is inconsistent with information collected from one or more assessments.

Claims 12-16 (Cancelled).

17. (Currently Amended) A method for creating a learning map, comprising:
specifying a set of learning targets, wherein each learning target is a discrete learnable concept;

specifying learning target dependency relationships for the specified learning targets;
creating or updating a conditional probability table, which includes inference values
based on said specified set of learning targets and said specified learning target dependency relationships; and

displaying an acyclic directed network corresponding to the conditional probability table, wherein the acyclic directed network comprises a node for each specified learning target and one or more arcs for illustrating specified learning target dependency relationships.

18. (Currently Amended) A method for creating a learning map, comprising:
specifying a set of learning targets, wherein each learning target is a discrete learnable concept;

for each specified learning target, specifying the learning targets that are precursors or postcursors of the learning target, thereby specifying precursor/postcursor learning target pairs, wherein a first learning target is a precursor of a second learning target if lack of knowledge of the first learning target implies a lack of knowledge of the second learning target and a first learning target is a postcursor of a second learning target if knowledge of the first learning target implies knowledge of the second learning target;

for each precursor/postcursor learning target pair, specifying a postcursor inference value and a precursor inference value; and

displaying an acyclic directed network that represents the precursor/postcursor relationships among the learning targets, wherein the acyclic directed network comprises a node for each specified learning target and one or more arcs for illustrating specified learning target precursor/postcursor relationships.

19. (Original) The method of claim 18, wherein, prior to specifying a postcursor inference value and a precursor inference value for a precursor/postcursor learning target pair, the method comprises the step of determining the postcursor inference value and the precursor inference value.

20. (Original) The method of claim 19, wherein the step of determining the postcursor inference value for the precursor/postcursor learning target pair comprises the steps of:

(A) assessing a set of students to determine the knowledge state of each student in the set with respect to the learning targets that form the precursor/postcursor learning target pair;

(B) determining the number of students in the set who have demonstrated that they know the postcursor learning target;

(C) determining the number of students in the set who have demonstrated that they know both the postcursor learning target and the precursor learning target; and

(D) dividing the number determined in step (C) by the number determined in step (B).

21. (Original) The method of claim 19, wherein the step of determining the precursor inference value for the precursor/postcursor learning target pair comprises the steps of:

(A) assessing a set of students to determine the knowledge state of each student in the set with respect to the learning targets that form the precursor/postcursor learning target pair;

(B) determining the number of students in the set who have demonstrated that they do not know the precursor learning target;

(C) determining the number of students in the set who have demonstrated that they do not know both the postcursor learning target and the precursor learning target; and

(D) dividing the number determined in step (C) by the number determined in step (B).

22. (Currently Amended) A method for determining a postcursor inference value for a precursor/postcursor learning target pair in a learning map, comprising:

(A) specifying a precursor/postcursor learning target pair comprising a precursor learning target and a postcursor learning target, wherein each learning target is a discrete learnable concept, and wherein a first learning target is a precursor learning target of a second learning target if lack of knowledge of the first learning target implies a lack of knowledge of the second learning target and a first learning target is a postcursor learning target of a second learning target if knowledge of the first learning target implies knowledge of the second learning target;

([[A]]B) assessing a set of students to determine the knowledge state of each student in the set with respect to the learning targets that form the precursor/postcursor learning target pair;

([[B]]C) determining the number of students in the set who have demonstrated that they know the postcursor learning target;

([[C]]D) determining the number of students in the set who have demonstrated that they know both the postcursor learning target and the precursor learning target; ~~and~~

([[D]]E) dividing the number determined in step ([[C]]D) by the number determined in step ([[B]]C); and

(F) saving the result of the division as a postcursor inference value for use in the learning map.

23. (Currently Amended) A method for determining a precursor inference value for a precursor/postcursor learning target pair in a learning map, comprising:

(A) specifying a precursor/postcursor learning target pair comprising a precursor learning target and a postcursor learning target, wherein each learning target is a discrete learnable concept, and wherein a first learning target is a precursor learning target of a second learning target if lack of knowledge of the first learning target implies a lack of knowledge of the second learning target and a first learning target is a postcursor learning target of a second learning target if knowledge of the first learning target implies knowledge of the second learning target;

([[A]]B) assessing a set of students to determine the knowledge state of each student in the set with respect to the learning targets that form the precursor/postcursor learning target pair;

([[B]]C) determining the number of students in the set who have demonstrated that they do not know the precursor learning target;

([[C]]D) determining the number of students in the set who have demonstrated that they do not know both the postcursor learning target and the precursor learning target; and

([[D]]E) dividing the number determined in step ([C]D) by the number determined in step ([B]C); and

(F) saving the result of the division as a precursor inference value for use in the learning map.

Claims 24-38 (Cancelled).

39. (Currently Amended) A method for creating learning maps that target specific subsets of students, comprising:

creating a first learning map;

verifying the accuracy of the first learning map with respect to a first group of students;

if the learning map is not accurate with respect to the first group of students, creating a second learning map by modifying the first learning map, wherein the second learning map is accurate with respect to the first group of students; and

~~verifying the accuracy of the first learning map with respect to a second group of students; and~~

~~if the learning map is not accurate with respect to the second group of students, creating a third learning map by modifying the first learning map, wherein the third learning map is accurate with respect to the second group of students~~

evaluating the knowledge state of at least one student in the first group with the second learning map by:

1) administering an assessment to the student;

2) recording the student's responses to each item in the assessment;

3) selecting a learning target from the second learning map;

4) determining the student's responses to items that target the learning target selected from the second learning map; and

5) determining the probability that the student knows the selected learning target .

40. (Currently Amended) The method of claim 39, further comprising the steps of verifying the accuracy of the first learning map with respect to a second group of students; and

if the learning map is not accurate with respect to the second group of students, creating a third learning map by modifying the first learning map, wherein the third learning map is accurate with respect to the second group of students, and

using the second learning map to evaluate the knowledge state of [[a]] at least one student in the first group

evaluating the knowledge state of at least one student in the second group with the third learning map by:

1) administering an assessment to the student;

2) recording the student's responses to each item in the assessment;

3) selecting a learning target from the third learning map;

4) determining the student's responses to items that target the learning target selected from the third learning map; and

5) determining the probability that the student knows the selected learning target.

41. (Currently Amended) The method of claim 40, further comprising the steps of verifying the accuracy of the second learning map with respect to a second group of students; and

if the learning map is not accurate with respect to the second group of students, creating a third learning map by modifying the second learning map, wherein the third learning map is accurate with respect to the second group of students, and

using the third learning map to evaluate the knowledge state of a student in the second group

evaluating the knowledge state of at least one student in the second group with the third learning map by:

- 1) administering an assessment to the student;
- 2) recording the student's responses to each item in the assessment;
- 3) selecting a learning target from the third learning map;
- 4) determining the student's responses to items that target the learning target selected from the third learning map; and
- 5) determining the probability that the student knows the selected learning target.

42. (New) The method of claim 22 further comprising the step of determining that the specified precursor/postcursor learning target pair has a valid postcursor relationship if the postcursor inference value exceeds a defined minimum threshold.

43. (New) The method of claim 23 further comprising the step of determining that the specified precursor/postcursor learning target pair has a valid precursor relationship if the precursor inference value exceeds a defined minimum threshold.